Claims

1.   (Original) A motion controlled handheld device comprising:

a user interface comprising a display having a viewable surface and operable to generate a current image;

a gesture database maintaining a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device;

a motion detection module operable to detect motion of the device within three dimensions and to identify components of the motion in relation to the viewable surface; and

a control module operable to:

track movement of the handheld device using the motion detection module;

compare the tracked movement against potential ones of the gestures;

determine that the tracked movement does not indicate a unique one of the gestures; and

generate feedback reporting that the tracked movement does not indicate a unique one of the gestures using the user interface.

2.   (Original) The motion controlled handheld device of Claim 1, wherein the control module is further operable to:

determine that the tracked movement indicates a plurality of probable ones of the gestures; and

generate feedback using the user interface to report that the tracked movement indicates the probable gestures.

3.   (Original) The motion controlled handheld device of Claim 2, wherein generating feedback using the user interface comprises modifying the current image to display an icon associated with each of the probable gestures.

4.   (Original) The motion controlled handheld device of Claim 2, wherein the control module is further operable to generate feedback reporting that the tracked movement indicates the probable gestures if a count of the probable gestures is below a threshold.

5.   (Original) The motion controlled handheld device of Claim 2, wherein the control module is further operable to suggest a simplified gesture set for selecting between the probable gestures.

6.   (Original) The motion controlled handheld device of Claim 5, wherein the simplified gesture set includes a plurality of planar gestures, each planar gesture defined by movement substantially parallel to the viewable surface.

7.   (Original) The motion controlled handheld device of Claim 1, wherein:
the user interface further comprises a vibration generation module; and
generating feedback comprises generating a vibration using the vibration generation module.

8.   (Original) The motion controlled handheld device of Claim 1, wherein:
the user interface further comprises a speaker; and
generating feedback comprises generating audio output using the speaker.

9.   (Original) The motion controlled handheld device of Claim 1, wherein the control module is further operable to:
determine that the tracked movement indicates a unique one of the gestures; and
generate feedback using the user interface to indicate the determined unique gesture.

10. (Original) The motion controlled handheld device of Claim 1, further comprising:

a first accelerometer operable to detect acceleration along a first axis;

a second accelerometer operable to detect acceleration along a second axis, the second axis perpendicular to the first axis; and

a third accelerometer operable to detect acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis; and wherein:

the gesture database further defines each of the gestures using a sequence of accelerations;

the motion detection module is further operable to detect motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

the control module is further operable to match the accelerations measured by the motion detection module against gesture definitions in the gesture database to identify particular ones of the gestures.

11.   (Original) A method for controlling a handheld device comprising:

generating a current image on a viewable surface of the handheld device;

maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device;

detecting motion of the device within three dimensions;

identifying components of the motion in relation to the viewable surface;

tracking movement of the handheld device using the motion detection module;

comparing the tracked movement against potential ones of the gestures;

determining that the tracked movement does not indicate a unique one of the gestures; and

generating feedback reporting that the tracked movement does not indicate a unique one of the gestures using the user interface.

12.   (Original) The method of Claim 11, further comprising:

determining that the tracked movement indicates a plurality of probable ones of the gestures; and

generating feedback using the user interface to report that the tracked movement indicates the probable gestures.

13.   (Original) The method of Claim 12, wherein generating feedback using the user interface comprises modifying the current image to display an icon associated with each of the probable gestures.

14.   (Original)   The method of Claim 12, further comprising suggesting a simplified gesture set for selecting between the probable gestures.

15.   (Original) The method of Claim 11, further comprising:

determining that the tracked movement indicates a unique one of the gestures; and

generating feedback using the user interface to indicate the determined unique gesture.

16.   (Original)   The method of Claim 11, wherein the gesture database further defines each of the gestures using a sequence of accelerations; the method further comprising:

detecting acceleration along a first axis;

detecting acceleration along a second axis, the second axis perpendicular to the first axis; and

detecting acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis;

detecting motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

matching the accelerations against gesture definitions in the gesture database to identify potential indicated ones of the gestures.

17.   (Currently Amended)   Logic for controlling a handheld device, the logic embodied as a computer program stored on ~~in~~ a computer readable medium and operable when executed to perform the steps of:

generating a current image on a viewable surface of the handheld device;

maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device;

detecting motion of the device within three dimensions;

identifying components of the motion in relation to the viewable surface;

tracking movement of the handheld device using the motion detection module;

comparing the tracked movement against potential ones of the gestures;

determining that the tracked movement does not indicate a unique one of the gestures; and

generating feedback reporting that the tracked movement does not indicate a unique one of the gestures using the user interface.

18.   (Original) The logic of Claim 17, further operable when executed to perform the steps of:

determining that the tracked movement indicates a plurality of probable ones of the gestures; and

generating feedback using the user interface to report that the tracked movement indicates the probable gestures.

19.   (Original) The logic of Claim 18, wherein generating feedback using the user interface comprises modifying the current image to display an icon associated with each of the probable gestures and suggesting a simplified gesture set for selecting between the probable gestures.

20. (Original) The logic of Claim 17, wherein the gesture database further defines each of the gestures using a sequence of accelerations; the logic further operable when executed to perform the steps of:

detecting acceleration along a first axis;

detecting acceleration along a second axis, the second axis perpendicular to the first axis; and

detecting acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis;

detecting motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

matching the accelerations against gesture definitions in the gesture database to identify potential indicated ones of the gestures.

21.   (Original) A motion controlled handheld device comprising:

means for generating a current image on a viewable surface of the handheld device;

means for maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device;

means for detecting motion of the device within three dimensions;

means for identifying components of the motion in relation to the viewable surface;

means for tracking movement of the handheld device using the motion detection module;

means for comparing the tracked movement against potential ones of the gestures;

means for determining that the tracked movement does not indicate a unique one of the gestures; and

means for generating feedback reporting that the tracked movement does not indicate a unique one of the gestures using the user interface.